

CLAIMS

1. A method for generating a digital signal representative of the pairing error between the channels of an analog digital conversion system with time interleaving (CAN 10) comprising an analog digital converter (CAN₁, CAN₂,...,CAN_N) on each channel characterized in that it comprises the determination of the spectrum of said digital signal (11-12) as a function of the frequency response of the analog digital conversion system with time interleaving (CAN 10) to at least one analog calibration signal (IC).

2. The method for generating a digital signal representative of the pairing error as claimed in the preceding claim, characterized in that it comprises the generation of a "comb" signal whose spectrum is composed of frequency lines kF_s/N (11) (where F_s is the sampling frequency and N the number of channels of the analog digital conversion system with time interleaving (CAN 10)) and the amplitude (12) dependent on the frequency response of the analog digital converter.

3. The method for generating a digital signal representative of the pairing error as claimed in the preceding claim, characterized in that the amplitude is dependent on the offset voltages ΔV_k (21) determined on the basis of the frequency response of the analog digital converter.

4. The method for generating a digital signal representative of the pairing error as claimed in one of claims 2 or 3, characterized in that it comprises the amplitude modulation of the "comb" signal (12) by the input signal (E_A) digitized by the conversion system (CAN 10) so that the modulation transforms the spectrum of the "comb" signal as a function of the frequency response of the analog digital converter.

5. The method for generating a digital signal representative of the pairing error as claimed in the preceding claim characterized in that the

amplitude is dependent on the deviations in gain ΔG_k (22) determined on the basis of the frequency response of the analog digital converter.

5 6. The method for generating a digital signal representative of the pairing error as claimed in one of claims 2 to 5, characterized in that it comprises the amplitude modulation of the "comb" signal by the derivative $s'(n)$ of the input signal digitized by the conversion system so that the modulation (12) transforms the spectrum of the "comb" signal as a function of the frequency response of the analog digital converter.

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7. The method for generating a digital signal representative of the pairing error as claimed in the preceding claim, characterized in that the amplitude is dependent on the sampling clock temporal deviations Δt_k (23) determined on the basis of the frequency response of the analog
15 digital converter.

8. The method for generating a digital signal representative of the pairing error as claimed in one of claims 2 to 7, characterized in that it comprises the amplitude modulation (12) of the "comb" signal by the result
20 $e_2(n)$ of the high-pass filtering of the input signal digitized by the conversion system so that the modulation transforms the spectrum of the "comb" signal as a function of the frequency response of the analog digital converter.

25 9. The method for generating a digital signal representative of the pairing error as claimed in the preceding claim, characterized in that the amplitude is dependent on the passband errors $\Delta \omega_k$ (24) determined on the basis of the frequency response of the analog digital converter.

30 10. A method for suppressing the pairing errors between the channels of an analog digital converter (CAN 10), characterized in that it comprises the generation of a digital signal (11-12) representative of the pairing error between the channels of an analog digital converter as

claimed in any one of claims 1 to 9 and the subtraction (13) from the signal at the output of the analog digital converter of said generated digital signal.

11. An analog digital conversion system with time interleaving of
5 sampling frequency F_s comprising N analog digital converters (CAN_1 , CAN_2, \dots, CAN_N) driven by a sampling clock (H_e) of frequency F_s/N , and characterized in that it furthermore comprises:

- means for generating a digital signal representative of the pairing error (11-12) as claimed in any one of claims 1 to 9 driven by said
10 clock (H_e) of frequency F_s ;
- means of subtraction (13) from the output signal of said analog digital converter of the digital signal generated by said generation means.

12. The analog digital conversion system with time interleaving
15 as claimed in the preceding claim, characterized in that the generation means comprise:

- a device for generating a "comb" signal (11) driven by said clock (H_e) of frequency F_s ;
- an amplitude modulation device (12) connected to the output
20 of said device for generating a "comb" signal (11) receiving calibration information (IC) determined as a function of said frequency response.